

# **Space Station Freedom Program Commercial Infrastructure and Technology Utilization**

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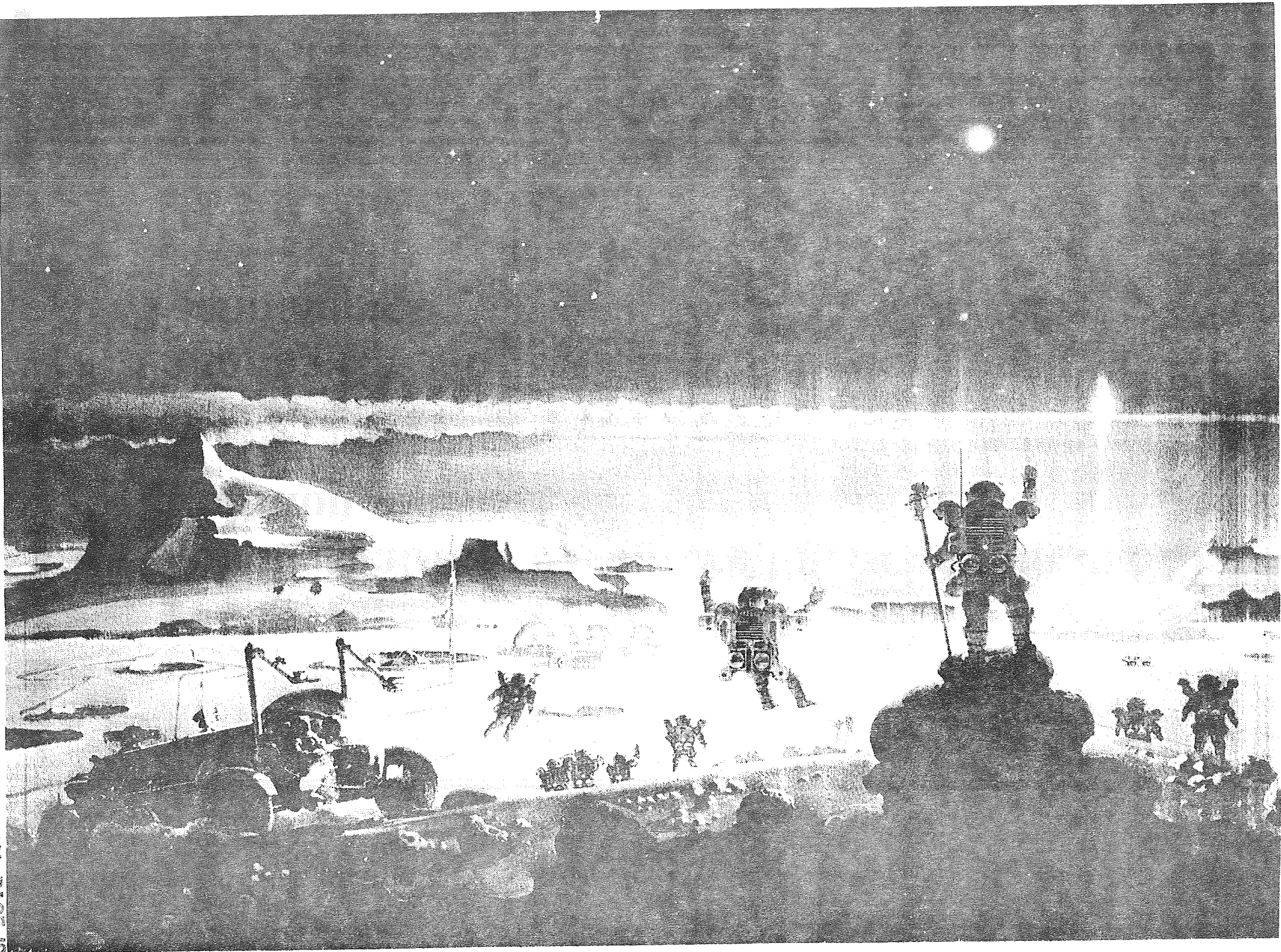
# Topics

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- **Commercial Infrastructure Participation in SSF Evolution**
- **Commercial Utilization of SSF–developed Technologies**

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# Importance of Commercial Space Infrastructure

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- **Government cannot be expected to make total investment**
- **Commercial participation is essential**
- **Industry has thirty years of space experience**
- **Requirement:**
  - **Risks are quantifiable**
  - **Expected return commensurate with risks**

# Importance of Space Station Freedom

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- **Will reduce the risk of commercial space activity**
  - **Technical**
  - **Market**
  - **Financial**
- **Creates opportunity for commercial ownership and operations of discrete space systems and services**
  - **Power Services**
  - **Data Services**
  - **Communications Services**
  - **Ground Services**
  - **Transportation Services**
  - **User Services**

# Benefits

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## *To Industry:*

- Entry into an emerging market
- Long term profits and return on investment
- Access to new technologies
- Market expansion

## *To NASA:*

- Reduced up-front expenditures
- Investment into new R&D
- Expanded participation and support for SSFP
- Support for National Space Policy

# Challenge to Advanced Studies Program

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- **Recognize potential role of commercial infrastructure**
  - **Policy**
    - **Private capital at risk**
    - **Non-U.S. government customers**
    - **Commercial market determines viability**
    - **Private sector has responsibility and management of activities**
- **Identify potential opportunities for commercial infrastructure**
  - **Criteria**
    - **NASA Space Commerce Opportunities planes nine initiates**



# Topics

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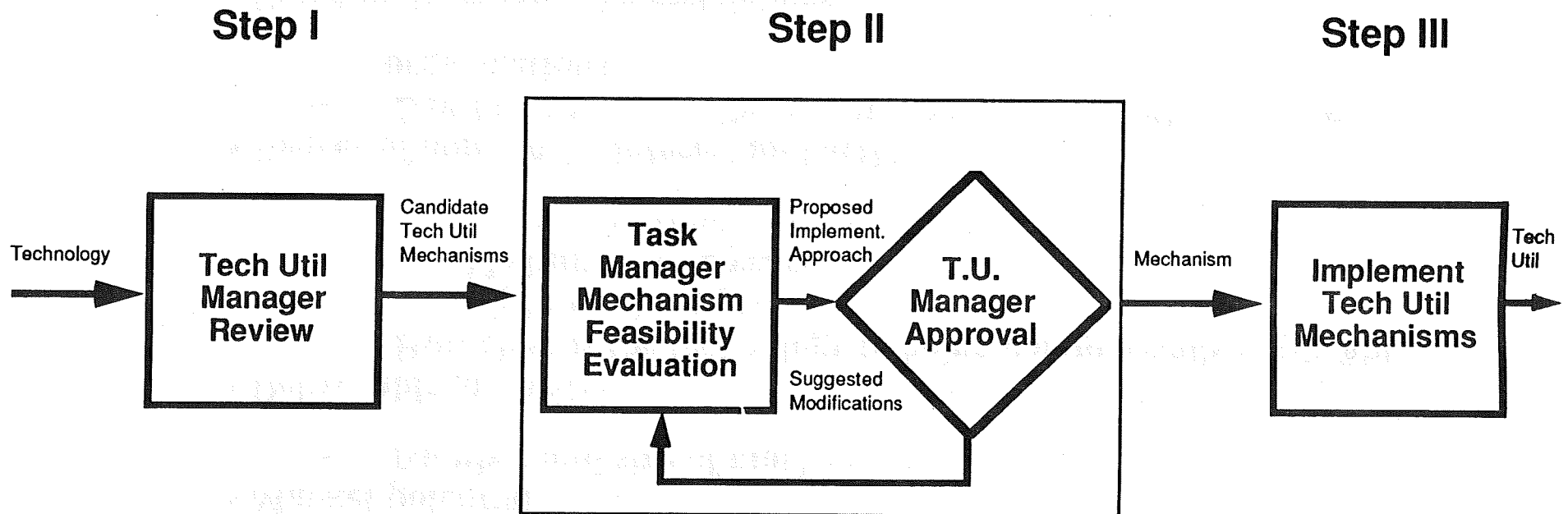
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# Technology Utilization Goals

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- **Facilitate U.S. industry's utilization of technologies developed within the Space Station Freedom Program**
- **Establish a standard approach to identify opportunities for commercial utilization of SSF technologies**

# Technology Utilization Process



**Note: Current scope focuses on the Engineering Prototype Development and Evaluation Program. Process can be adapted to cover additional station and other NASA technologies.**

# Technology Utilization Criteria

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## POTENTIAL COMMERCIAL UTILITY EVALUATION CRITERIA

- **Market potential**
  - **Number and size of markets**
- **Deliverable maturity**
  - **How close is the technology to being commercially applicable**
    - **High: working prototype**
    - **Medium: 1 to 2 years**
    - **Low: more than 2 years**
- **Degree of non-NASA interest and activity**
  - **Level of interest in the private sector and in other government organizations**
- **Freedom from transfer restrictions**
  - **Is the technology free from restrictions on its transfer to the private sector**
    - **High indicates no transfer restrictions**
    - **Zero indicates complete restriction from transfer**

# Technology Utilization Mechanism

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- **Active mechanisms include:**
  - **Joint Sponsored Research Program**
  - **Federal Technology Transfer Act Cooperative Research and Development Agreement**
- **Passive mechanisms include:**
  - **Publication In Tech Briefs**
  - **Conferences and Seminars**
  - **Industrial Application Centers**
  - **Computer Software Management and Information Center (COSMIC) Database**

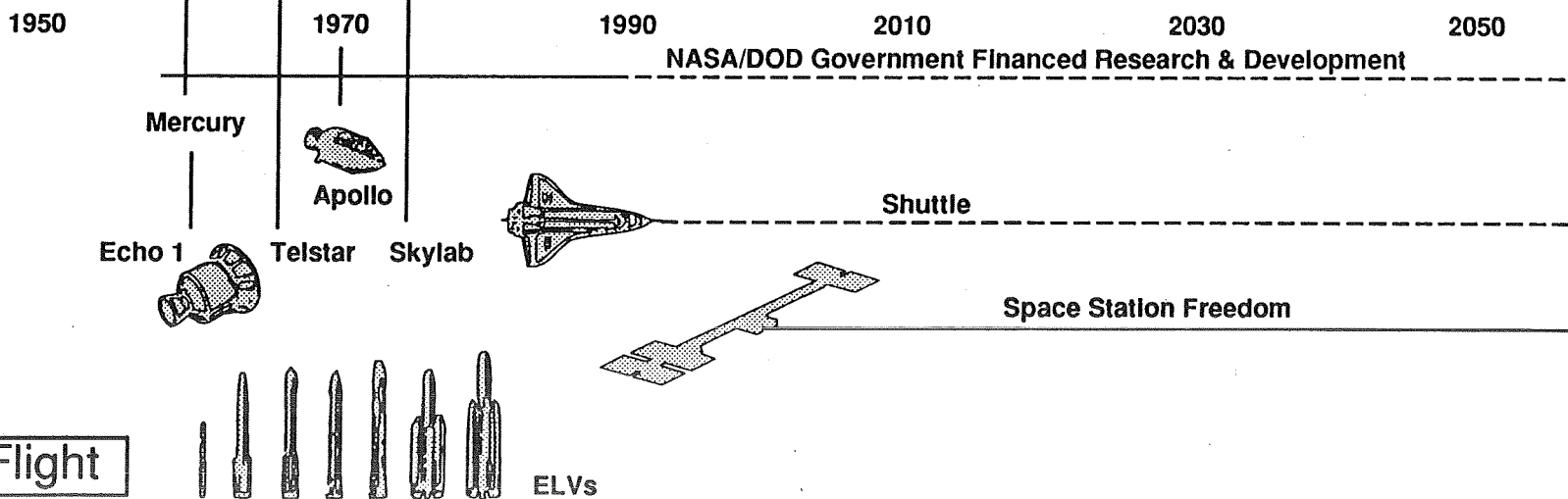
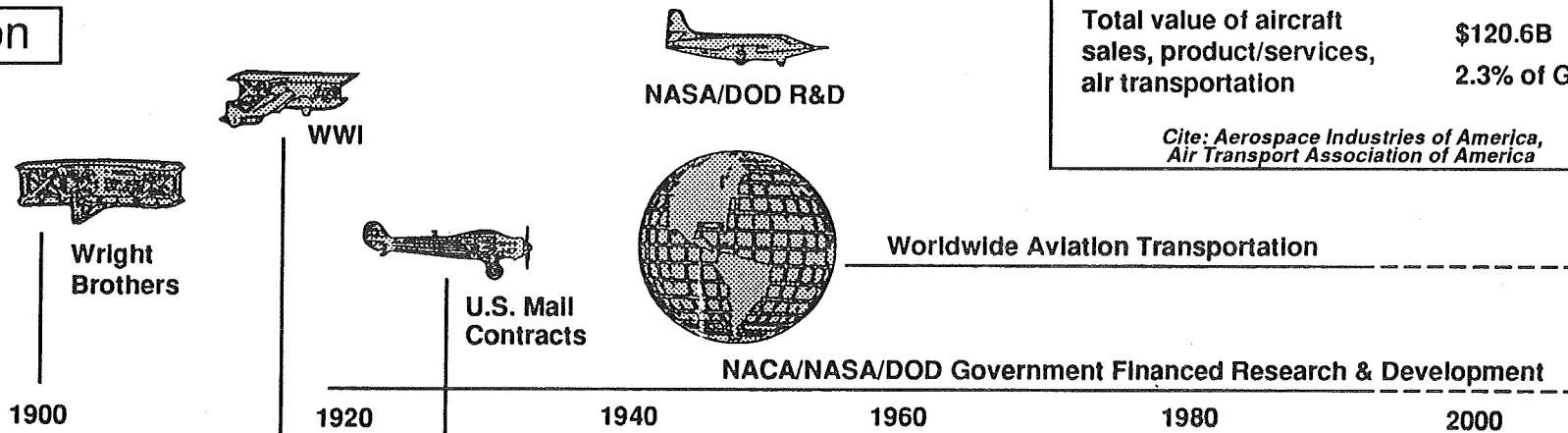
# Challenge to Engineering Prototype Development Program

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- **Recognize potential commercial value of technology**
  - **Personal knowledge**
  - **Criteria**
- **Support efforts to employ technology utilization mechanism**

# Comparison of Aviation and Space Development

## Aviation



## Space Flight